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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/997,531	11/30/2001	Patrick Eugene O'Neil	MSFT-0570/167379.1	5014

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EXAMINER

RAYYAN, SUSAN F

ART UNIT	PAPER NUMBER
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2177

DATE MAILED: 06/08/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/997,531

Applicant(s)

O'NEIL ET AL.

Examiner

Susan F. Rayyan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-32 is/are pending in the application.
- 4a) Of the above claim(s) 20-32 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 13-19 is/are rejected.
- 7) ☒ Claim(s) 10-12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 November 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date paper#2.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 1-19, drawn to database schema or database structure, classified in class 707, subclass 100.
 - II. Claims 20-28 drawn to file allocation, classified in class 707, subclass 205.
 - III. Claim 29-32, drawn to database schema or database structure, classified in class 707, subclass 100.
2. The inventions are distinct, each from the other because of the following reasons:

Inventions I, II and III are related as subcombinations disclosed as usable together in a single combination. The subcombinations are distinct from each other if they are shown to be separately usable. In the instant case, the invention in Group I has a separate utility such as a data structure. Invention II has a separate utility such as inserting a new node. Invention III has a separate utility such as comparing positions of nodes. See M.P.E.P. § 806.05(d).
3. Because these inventions are distinct for the reasons given above and the search required for Group I, II and III is not required for the other Group, restriction for examination purposes as indicated is proper.

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4. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art because of their recognized divergent subject matter, restriction for examination purposes as indicated is proper.

5. During a telephone conversation with Mr. Peter Ullman (Reg. No. 43,963) on May 20, 2004 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-19. Affirmation of this election must be made by applicant in replying to this Office action. Claims 20-32 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

6. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 C.F.R. § 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filed petition under 37 C.F.R. § 1.48(b) and by the fee required under 37 C.F.R. § 1.17(h).

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3,6-9,13-14,16-17 are rejected under 35 U.S.C. 102(b) as being anticipated by Brosada et al (US 5,873,087).

As per independent claim 1 Brosada anticipates:

A computer-readable medium having encoded thereon a data structure which represents hierarchically-organized data, said hierarchically-organized data having at least a first node at a first level and a plurality of second nodes at a second level, the second nodes being child nodes of the first node, the first and second nodes each having a corresponding data item associated therewith, the data structure at Summary; a plurality of rows each having a plurality of fields, each of said rows corresponding to a data item associated with a one of the first and second nodes, the fields of each row at fig.1;

a first field which stores the data item associated with the one of the nodes that corresponds to the row at fig.1, ref. no. 17 and if fig. 5 (ab/bren/nen: line3);

and a second field which stores a position identifier which identifies the level at which the node that corresponds to the row is located in the hierarchically-organized data at col.4, lines 18-23, fig.1, fig 5:ref.no. 16 (The three 111 indicates 3rd level);

(a) an identity of an ancestor node of the node that corresponds to the row, or (b) the fact that the note that corresponds to the row has no ancestor in fig.5 line 2(<hf> indicates ancestor node).

Brosada teaches a data structure which represents hierarchically-organized data, said hierarchically-organized data having at least a first node at a first level and a plurality of second nodes at a second level, the second nodes being child nodes of the

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first node, the first and second nodes each having a corresponding data item associated therewith, the data structure, a plurality of rows each having a plurality of fields, each of said rows corresponding to a data item associated with a one of the first and second nodes, the fields of each row, a first field which stores the data item associated with the one of the nodes that corresponds to the row at and a second field which stores a position identifier which identifies the level at which the node that corresponds to the row is located in the hierarchically-organized data, an identity of an ancestor node of the node that corresponds to the row, or the fact that the node that corresponds to the row has no ancestor at Summary at fig.1; fig.1, ref.no. 17, fig. 5 (ab/bren/nen: line3), col.4, lines 18-23, fig 5:ref.no. 16 (The three 111 indicates 3rd level in fig.5 line 2(<hf> indicates ancestor node).

As per claim 2 same as claim arguments above and Brosada anticipates: wherein the data structure comprises a relation in a relational database at col.5, lines 20-23.

As per claim 3 same as claim arguments above and Brosada anticipates: wherein the hierarchically-organized data comprises data in a hierarchical markup language at col.2, lines 45-51.

As per claim 6 same as claim arguments above and Brosada anticipates: wherein the position identifier of the first node comprises a first value in a space of ordered values, and wherein the position identifiers of each of the second nodes comprises said first value and a second value in said space of ordered values at fig.5,

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line 8 (path definition 111, which is the first node at 3rd level) and fig. 5, line 11 (path definition 1111, which is the first value 111 and an additional value1, 4th level).

As per claim 7 same as claim arguments above and Brosada anticipates:
wherein an order is defined among the second nodes, and wherein the second values associated with the second nodes are respective of said order with respect to said space of ordered values at fig. 5, line 8 (path definition 111, which is the first node at 3rd level) and fig. 5, line 11 (path definition 1111, which is the first value 111 and an additional value1, 4th level).

As per claim 8 same as claim arguments above and Brosada anticipates:
wherein said space of ordered values comprises the set of integers, wherein said first value is a "1", and wherein the second values for the second nodes are integers in an increasing series of integers at fig.5, line 23 (path definition: 12111).

As per claim 9 same as claim arguments above and Brosada anticipates:
wherein said space of ordered values comprises the set of integers, wherein said first value is a "1", and wherein the second values for the second nodes are odd integers in an increasing series of integers at fig. 5, line 8 (path definition 111, which is the first node at 3rd level) and fig. 5, line 11 (path definition 1111, which is the first value 111 and an additional value1, 4th level).

As per independent claim 13

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A method of representing hierarchically-organized data, the hierarchically-organized data comprising at least a first node at a first level and a plurality of second nodes at a second level, the second nodes being child nodes of the first node, an order being defined among the second nodes, the first and second nodes each having a data item associated therewith at Summary;

assigning a first position identifier to the first node, wherein said first position identifier comprises a first value selected from an ordered space of values at fig. 5, line 8 (path definition 111, which is the first node at 3rd level) and fig. 5, line 11 (path definition 1111, which is the first value 111 and an additional value1, 4th level);

assigning a second position identifier to each of the second nodes, each of the second identifiers comprising said first value and a second value selected from said ordered space of values, wherein the second values are assigned to the second nodes respectively of the order at fig. 5, line 8 (path definition 111, which is the first node at 3rd level) and fig. 5, line 11 (path definition 1111, which is the first value 111 and an additional value1, 4th level);

and storing, in a non-hierarchical data structure, a plurality of data records, wherein each of the plurality of data records corresponds to one of the first or second nodes, and wherein each data record includes, for its corresponding node: the position identifier associated with the node; and the data item associated with the node at fig.1, ref.no.16-17.

Brosada teaches A method of representing hierarchically-organized data, the hierarchically-organized data comprising at least a first node at a first level and a

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plurality of second nodes at a second level, the second nodes being child nodes of the first node, an order being defined among the second nodes, the first and second nodes each having a data item associated therewith, assigning a first position identifier to the first node, wherein said first position identifier comprises a first value selected from an ordered space of values, assigning a second position identifier to each of the second nodes, each of the second identifiers comprising said first value and a second value selected from said ordered space of values, wherein the second values are assigned to the second nodes respectively of the order, and storing, in a non-hierarchical data structure, a plurality of data records, wherein each of the plurality of data records corresponds to one of the first or second nodes, and wherein each data record includes, for its corresponding node: the position identifier associated with the node; and the data item associated with the node at Summary, at fig. 1, ref.no.16-17, fig. 5, line 8 (path definition 111, which is the first node at 3rd level) and fig. 5, line 11 (path definition 1111, which is the first value 111 and an additional value1, 4th level).

As per claim 14 same as claim arguments above and Brosada anticipates: wherein said non-hierarchical data structure comprises a relational database, and wherein each of said data records comprises a row of a relation in said relational database at fig.1 and col.5, lines 20-23.

As per independent claim 16 Brosada anticipates:

A system for storing hierarchically-organized data, the hierarchically-organized data comprising at least a first node at a first level and a plurality of second nodes at a

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second level, the second nodes being child nodes of the first node, each of the first and second nodes having a data item associated therewith at Summary;

a relational table having a plurality of rows, each of said rows corresponding to a node in the hierarchically-organized data, the relational table having a plurality of columns at fig.1;

a first column which stores a position identifier indicative of the level at which the node that corresponds to the row is located in the hierarchically-organized data, at col.4, lines 18-23, fig.1, fig 5:ref.no. 16 (The three 111 indicates 3rd level);

and further indicative of an ancestor of the node that corresponds to the row in fig.5 line 2(<hf> indicates ancestor node);

and a second column which stores the data item associated with the node that corresponds to the row at fig.1, ref.no. 17 and if fig. 5 (ab/bren/nen :line3);

and a relational table manager which inserts and retrieves the rows from the relational database at col.5, lines 20-23.

Brosada teaches a system for storing hierarchically-organized data, the hierarchically-organized data comprising at least a first node at a first level and a plurality of second nodes at a second level, the second nodes being child nodes of the first node, each of the first and second nodes having a data item associated therewith, a relational table having a plurality of rows, each of said rows corresponding to a node in the hierarchically-organized data, the relational table having a plurality of columns, the columns comprising a first column which stores a position identifier indicative of the level at which the node that corresponds to the row is located in the hierarchically-

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organized data, and further indicative of an ancestor of the node that corresponds to the row, and a second column which stores the data item associated with the node that corresponds to the row, and a relational table manager which inserts and retrieves the rows from the relational database at Summary, fig.1, col.4, lines 18-23, , fig 5: ref.no. 16 (The three 111 indicates 3rd level), fig.1: ref. no. 17 and fig. 5 (ab/bren/nen: line3) and at col. 5, lines 20-23.

As per claim 17 same as claim arguments above and Brosada anticipates:
wherein said relational table manager comprises a database management system at col.5, lines 20-23.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. Claims 4-5,15, 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brosada et al (US 5,873,087) and Chau et al. (US 6721727).

As per claim 4,18 same as claim arguments above and Brosada does not explicitly teach wherein said hierarchical markup language comprises Extensible Markup Language (XML) however Chau does teach this limitation at col.4, lines 64-65. Thus, it would have been obvious to one of ordinary skill in the art at the time of the

invention to combine the cited references to combine the combine the structural XML information with the traditional relational data at col.7, lines 30-31.

As per claim 5 same as claim arguments above and Brosada teaches wherein the fields of each row further comprise: a name identifier identifying a user-assigned ... name (fig. 5 line 1: <lemma>); and a data type (at fig.4, line 6: <wortart_text> and line8: <semulp_nr>).

Brosada does not explicitly teach XML however Chau does teach this limitation at col.4, lines 64-65. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to combine the combine the structural XML information with the traditional relational data at col.7, lines 30-31.

As per claim 15 same as claim arguments above and Brosada teaches does not explicitly teach wherein said hierarchically-organized data comprises data ... having a plurality of tags, each of said tags delimiting a portion of the hierarchically-organized data, said tags being nestable, and each of said tags and its delimited data corresponding to one or more nodes in the hierarchically-organized data at fig.5: ref. No. 13(label) and col.4, lines 45-47 (label, label sequence).

Brosada does not explicitly teach wherein said hierarchically-organized data comprises in Extensible Markup Language (XML) however Chau does teach this limitation at col.4, lines 64-65. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to combine the

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combine the structural XML information with the traditional relational data at col.7, lines 30-31.

As per claim 19 same as claim arguments above and Brosada teaches data comprises a plurality of tags which delimit portions of the hierarchically-organized data, said tags being nestable, wherein each of said tags and its corresponding delimited data corresponds to one or more nodes in the hierarchically-organized data at fig.5: ref. No. 13(label) and col.4, lines 45-47 (label, label sequence); and at least some of the rows in said relational table further comprise: a tag identifier indicative of the tag associated with the node that corresponds to the row (fig. 5 line 1: <lemma>) and a type identifier indicative of a type of the data delimited by the tag indicated by the row's tag identifier (at (ig.4, line 6: <wortart_text> and line8: <semulp_nr>).

Brosada does not explicitly teach XML however Chau does teach this limitation at col.4, lines 64-65. Thus, it would have been obvious to one of ordinary skill in the art at the time of the invention to combine the cited references to combine the combine the structural XML information with the traditional relational data at col.7, lines 30-31.

Allowable Subject Matter

11. Claims 10-12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

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Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Susan Rayyan whose telephone number is (703) 305-0311. The examiner can normally be reached M-F: 8am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Breene can be reached on 703-305-9790. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9306 for Official communications, (703) 746-7238 for After Final communications and (703) 746-7240 for Status inquiries and draft communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

Susan Rayyan


June 1, 2004


GRETA ROBINSON
PRIMARY EXAMINER